

## CLAIMS:

1. A video encoder for encoding images in a first resolution mode with reference to a reference image having said first resolution, the encoder comprising a memory having the capacity for storing said reference image with said first resolution, characterized in that the video encoder comprises control means for selectably encoding said images in a second,  
5 lower resolution mode with reference to two reference images having said second resolution, and for storing said two reference images with the second resolution in said memory.

2. A video encoder as claimed in claim 1, further including a motion estimation circuit applying a predetermined search strategy in the first resolution mode to search motion  
10 vectors representing motion between an input image and the reference image, said motion estimation circuit being arranged to apply said search strategy in the second resolution mode to both reference images.

3. A video encoder as claimed in claim 2, wherein selected images are encoded  
15 in the second resolution mode with respect to one of said reference images, the motion estimation circuit being arranged to apply the search strategy in a first pass to search motion vectors with a first precision, and to apply said search strategy in a second pass to refine the precision of the motion vectors found in the first pass.

4. A video encoder as claimed in claim 2, further arranged to selectably encode  
20 images in a third, yet lower resolution mode with reference to two reference images having said third resolution, said motion estimation circuit being arranged to apply said search strategy in the third resolution mode to both reference images, and to apply the search strategy for each reference image in a first pass to search motion vectors with a first  
25 precision, and to apply said search strategy in a second pass to refine the precision of the motion vectors found in the first pass.

5. A video encoder as claimed in any one of claims 1 to 4, wherein said reference image having the first resolution is a previous image of a sequence of images, one of the

reference images having the second resolution is a previous image of said sequence, and the other one of the reference images having the second resolution is a subsequent image of said sequence.

5 6. A method of encoding images in a first resolution mode with reference to a reference image having said first resolution, comprising the step of storing said reference image with said first resolution in a memory having the capacity therefor, characterized in that the method comprises the steps of selectably encoding said images in a second, lower resolution mode with reference to two reference images having said second resolution, and  
10 storing said two reference images with the second resolution in said memory.

7. A method as claimed in claim 6, further including a step of searching motion vectors representing motion between an input image and the reference image in the first resolution mode, said searching being applied to both reference images in the second  
15 resolution mode.

8. A method as claimed in claim 7, wherein selected images are encoded in the second resolution mode with respect to one of said reference images, the searching step being applied in a first pass to search motion vectors with a first precision, and in a second pass to  
20 refine the precision of the motion vectors found in the first pass.

9. A method as claimed in claim 7, further arranged to selectably encode images in a third, yet lower resolution mode with reference to two reference images having said third resolution, said searching step being applied in the third resolution mode to both reference  
25 images, and in a first pass to search motion vectors with a first precision, and in a second pass to refine the precision of the motion vectors found in the first pass.

10. A method as claimed in any one of claims 6 to 9, wherein said reference image having the first resolution is a previous image of a sequence of images, one of the reference  
30 images having the second resolution is a previous image of said sequence, and the other one of the reference images having the second resolution is a subsequent image of said sequence.

11. A video decoder for decoding images in a first resolution mode with reference to a reference image having said first resolution, the decoder comprising a memory having

the capacity for storing said reference image with said first resolution, characterized in that the video decoder comprises control means for decoding said images in a second, lower resolution mode with reference to two reference images having said second resolution, and for storing said two reference images with the second resolution in said memory.

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12. A method of decoding images in a first resolution mode with reference to a reference image having said first resolution, comprising the step of storing said reference image with said first resolution in a memory having the capacity therefor, characterized in that the method comprises the steps of decoding said images in a second, lower resolution mode with reference to two reference images having said second resolution, and storing said two reference images with the second resolution in said memory.

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